

Tribhuvan University
Institute of Science and Technology
Model Question Paper

BSc. CSIT - Third Semester
Course Title: Object Oriented Programming
Course No.: CSC 202

Full Marks: 60
Pass Marks: 24
Time: 3 hrs.

Group A

Attempt any two questions.

(2x10=20)

1. Explain in detail the following principle of object oriented programming
 - (i) Data encapsulation and data hiding
 - (ii) Inheritance and polymorphism
 - (iii) Generic programming
2. Explain the different types of constructors in C++ with suitable examples.
3. Create an abstract base class shape with two members base and height, a member function for initialization and a pure virtual function to compute area(). Derive two specific classes Triangle and Rectangle which override the function area(). Use these classes in a main function and display the area of a triangle and a rectangle.

Group B

Attempt any eight questions

(8x5=40)

4. What is a friend function? What are the merits and demerits of using friend function?
5. What is the pointer? How is it available to member functions of a class?
6. Write a program to perform addition of two complex numbers using operator overloading.
7. In what order are the class constructors called when derived class object is created? Explain with examples.
8. Write a program in C++ to count the number of words in a line of text.
9. Write a C++ program to multiply matrices using function template.
10. What are the keywords used in C++ for exception handling? Describe their uses with suitable example.
11. Write a program to find the cube of given integer using inline function.
12. Explain the different types of class access specifiers.

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Bachelor Level/Second Year/Third Semester/Science

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Computer Science and Information Technology (CSC 202)

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(Object Oriented Programming Language)

Time: 3 hours.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Section A

Attempt any two questions.

(2x10=20)

1. Explain in detail the following principles of object oriented programming
 - (i) Data encapsulation and data hiding
 - (ii) Inheritance and polymorphism
 - (iii) Abstraction
2. Why constructor and destructor are required in the Object-Oriented Programming? Explain with suitable example.
3. Define a Student class (with necessary constructors and member functions) in Object-Oriented Programming (abstract necessary attributes and their types). (Write a complete code in C++ programming Language).
 - Derive Computer Science and Mathematics classes from student class adding necessary attributes (at least three subjects).
 - Use these classes in a main function and display the average marks of computer science and mathematics students.

Section B

Attempt any eight questions:

(8x5=40)

4. What is type casting? Explain with suitable example.
5. Write a program to perform subtraction of two complex numbers using operator overloading.
6. Why exception handling is required? Explain with suitable example.
7. Differentiate between super class and sub class with suitable example.
8. Write a program in C++ to count the number of words in a line of text.
9. Differentiate between function overriding and function overloading. Explain with suitable example.
10. Explain the role of polymorphism in Object Oriented Programming.
11. Explain the different types of class access specifiers.
12. Write a program to find the cube of given integer using inline function.
13. Write a program to convert centigrade into Fahrenheit temperature.

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Section A

Attempt any two questions:

(2x10=20)

1. Discuss the feature of the Object-Oriented Programming. Differentiate between Object-Oriented Programming and Procedural based programming.
2. What is constructor? Explain their types? Discuss user defined parameterized constructor with suitable example.
3. Define a clock class (with necessary constructors and member functions) in Object-Oriented Programming (abstract necessary attributes and their types). (Write a complete code in C++ Programming Language).
 - Derive Wall_Clock class from Clock class adding necessary attributes.
 - Create two objects of Wall_Clock class with all initial state to 0 or NULL.

Section B

Attempt any eight questions:

(8x5=40)

4. How can you classify objects? Why dynamic object is needed?
5. What is operator overloading? Explain their types with suitable examples.
6. Why type conversion is necessary in OOP? Explain with example, the type conversion routine.
7. What is Inheritance? Explain their types with suitable examples.
8. What is friend function? Why it is used in OOP? Explain with an example.
9. What is Container class? Differentiate container class from inheritance.
10. Explain the role of virtual function in Object-Oriented Programming.
11. Explain about "this" pointer with suitable example.
12. Write a program to find the square of given integer using inline function.
13. Write a program to convert feet into meter.